

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1-48. (Cancelled)

49. (Previously Presented) An isolated antibody or fragment thereof that specifically binds to a protein consisting of amino acid residues 31 to 300 of SEQ ID NO:2.

50. (Previously Presented) The antibody or fragment thereof of claim 49 that binds a protein consisting of a fragment of a protein consisting of amino acids residues 31 to 300 of SEQ ID NO:2 wherein said fragment is at least 30 amino acids in length.

51. (Previously Presented) The antibody or fragment thereof of claim 49 that binds an epitope within the N-terminal 142 amino acids of the protein of SEQ ID NO:4.

52. (Previously Presented) The antibody or fragment thereof of claim 49 wherein said protein bound by said antibody or fragment thereof is glycosylated.

53. (Previously Presented) The antibody or fragment thereof of claim 49 which is a polyclonal antibody.

54. (Previously Presented) The antibody or fragment thereof of claim 49 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

55. (Previously Presented) The antibody or fragment thereof of claim 49 which is labeled.

56. (Previously Presented) The antibody or fragment thereof of claim 55 which is labeled with a label selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

57. (Previously Presented) The antibody or fragment thereof of claim 49 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

58. (Previously Presented) The antibody or fragment thereof of claim 49 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

59. (Previously Presented) An isolated cell that produces the antibody or fragment thereof of claim 49.

60. (Previously Presented) A hybridoma that produces the antibody or fragment thereof of claim 49.

61. (Previously Presented) A method of detecting TNFR-6 in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 49; and
- (b) detecting the TNFR-6 protein in the biological sample.

62. (Previously Presented) The method of claim 61 wherein the antibody or fragment thereof is a polyclonal antibody.

63. (Previously Presented) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

- (a) a protein comprising the amino acid sequence of amino acid residues 31 to 300 of SEQ ID NO:2;

(b) a protein comprising the amino acid sequence of amino acid residues 31 to 283 of SEQ ID NO:2;

(c) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2; and

(d) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues of SEQ ID NO:2;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

64. (Previously Presented) The antibody or fragment thereof of claim 63 obtained from an animal immunized with protein (a).

65. (Previously Presented) The antibody or fragment thereof of claim 63 obtained from an animal immunized with protein (b).

66. (Previously Presented) The antibody or fragment thereof of claim 63 obtained from an animal immunized with protein (c).

67. (Previously Presented) The antibody or fragment thereof of claim 63 obtained from an animal immunized with protein (d).

68. (Previously Presented) The antibody or fragment thereof of claim 63 which is a monoclonal antibody.

69. (Previously Presented) The antibody or fragment thereof of claim 63 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

70. (Previously Presented) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein consisting of amino acid residues 31 to 300 of SEQ ID NO:2.

71. (Previously Presented) The antibody or fragment thereof of claim 70 that binds a protein consisting of a fragment of a protein consisting of amino acids residues 31 to 300 of SEQ ID NO:2 wherein said fragment is at least 30 amino acids in length.

72. (Previously Presented) The antibody or fragment thereof of claim 70 that binds an epitope within the N-terminal 142 amino acids of the protein of SEQ ID NO:4.

73. (Previously Presented) The antibody or fragment thereof of claim 70 wherein said protein bound by said antibody or fragment thereof is glycosylated.

74. (Previously Presented) The antibody or fragment thereof of claim 70 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

75. (Previously Presented) The antibody or fragment thereof of claim 70 which is labeled.

76. (Previously Presented) The antibody or fragment thereof of claim 75 which is labeled with a label selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

77. (Previously Presented) The antibody or fragment thereof of claim 70 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

78. (Previously Presented) The antibody or fragment thereof of claim 70 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

79. (Previously Presented) An isolated cell that produces the antibody or fragment thereof of claim 70.

80. (Previously Presented) A hybridoma that produces the antibody or fragment thereof of claim 70.

81. (Previously Presented) A method of detecting TNFR-6 in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 70; and
- (b) detecting the TNFR-6 in the biological sample.

82. (Previously Presented) An isolated antibody or fragment thereof that specifically binds to a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810.

83. (Previously Presented) The antibody or fragment thereof of claim 82 that binds a protein consisting of a fragment of a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810, wherein said fragment is at least 30 amino acids in length.

84. (Previously Presented) The antibody or fragment thereof of claim 82 that binds an epitope within the N-terminal 142 amino acids of the protein encoded by the cDNA contained in ATCC Deposit Number 97809.

85. (Previously Presented) The antibody or fragment thereof of claim 82 wherein said protein bound by said antibody or fragment thereof is glycosylated.

86. (Previously Presented) The antibody or fragment thereof of claim 82 which is a polyclonal antibody.

87. (Previously Presented) The antibody or fragment thereof of claim 82 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

88. (Previously Presented) The antibody or fragment thereof of claim 82 which is labeled.

89. (Previously Presented) The antibody or fragment thereof of claim 88 which is labeled with a label selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

90. (Previously Presented) The antibody or fragment thereof of claim 82 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

91. (Previously Presented) The antibody or fragment thereof of claim 82 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

92. (Previously Presented) An isolated cell that produces the antibody or fragment thereof of claim 82.

93. (Previously Presented) A hybridoma that produces the antibody or fragment thereof of claim 82.

94. (Previously Presented) A method of detecting TNFR-6 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 82; and
- (b) detecting the TNFR-6 protein in the biological sample.

95. (Previously Presented) The method of claim 94 wherein the antibody or fragment thereof is a polyclonal antibody.

96. (Previously Presented) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

- (a) a protein comprising the amino acid sequence of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810;
- (b) a protein comprising the amino acid sequence of the extracellular soluble domain of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810;
- (c) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810; and
- (d) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

97. (Previously Presented) The antibody or fragment thereof of claim 96 obtained from an animal immunized with protein (a).

98. (Previously Presented) The antibody or fragment thereof of claim 96 obtained from an animal immunized with protein (b).

99. (Previously Presented) The antibody or fragment thereof of claim 96 obtained from an animal immunized with protein (c).

100. (Previously Presented) The antibody or fragment thereof of claim 96 obtained from an animal immunized with protein (d).

101. (Previously Presented) The antibody or fragment thereof of claim 96 which is a monoclonal antibody.

102. (Previously Presented) The antibody or fragment thereof of claim 96 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

103. (Previously Presented) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810.

104. (Previously Presented) The antibody or fragment thereof of claim 103 that binds a protein consisting of a fragment of a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97810, wherein said fragment is at least 30 amino acids in length.

105. (Previously Presented) The antibody or fragment thereof of claim 103 that binds an epitope within the N-terminal 142 amino acids of the protein encoded by the cDNA contained in ATCC Deposit Number 97809.

106. (Previously Presented) The antibody or fragment thereof of claim 103 wherein said protein bound by said antibody or fragment thereof is glycosylated.

107. (Previously Presented) The antibody or fragment thereof of claim 103 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

108. (Previously Presented) The antibody or fragment thereof of claim 103 which is labeled.

109. (Previously Presented) The antibody or fragment thereof of claim 108 which is labeled with a label selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

110. (Previously Presented) The antibody or fragment thereof of claim 103 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

111. (Previously Presented) The antibody or fragment thereof of claim 103 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

112. (Previously Presented) An isolated cell that produces the antibody or fragment thereof of claim 103.

113. (Previously Presented) A hybridoma that produces the antibody or fragment thereof of claim 103.

114. (Previously Presented) A method of detecting TNFR-6 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 103; and
- (b) detecting the TNFR-6 protein in the biological sample.

115. (Previously Presented) An isolated antibody or fragment thereof that specifically binds a TNFR-6 protein purified from a cell culture wherein said TNFR-6 protein is encoded by a polynucleotide encoding amino acids 1 to 300 of SEQ ID NO:2 operably associated with a regulatory sequence that controls expression of said polynucleotide.

116. (Previously Presented) The antibody or fragment thereof of claim 115 that binds an epitope within the N-terminal 142 amino acids of the protein of SEQ ID NO:4.

117. (Previously Presented) The antibody or fragment thereof of claim 115 which is a monoclonal antibody.

118. (Previously Presented) The antibody or fragment thereof of claim 115 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

119. (Previously Presented) The antibody or fragment thereof of claim 115 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

120. (Previously Presented) The antibody or fragment thereof of claim 115 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

121. (Previously Presented) An isolated cell that produces the antibody or fragment thereof of claim 115.

122. (Previously Presented) A hybridoma that produces the antibody or fragment thereof of claim 115.

123. (Previously Presented) A method of detecting TNFR-6 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 115; and
- (b) detecting the TNFR-6 protein in the biological sample.

124. (New) The antibody or fragment thereof of claim 49 which (a) binds to a TNFR-6 α polypeptide consisting of amino acids 1 to 215 or amino acids 1 to 300 of SEQ ID NO:2 and (b) inhibits binding of Fas ligand to the TNFR-6 α polypeptide of (a).

125. (New) The antibody of claim 124 wherein said antibody further inhibits binding of LIGHT ligand to the TNFR-6 α polypeptide of (a).

126. (New) The antibody of claim 124 wherein said antibody is a monoclonal antibody, a chimeric antibody, a monovalent antibody or a human antibody.

127. (New) The antibody of claim 126 wherein said antibody comprises a Fab fragment.

128. (New) The antibody of claim 126 wherein said antibody is expressed in a recombinant host cell selected from the group consisting of a CHO cell, yeast cell and E. coli.

129. (New) The antibody or fragment thereof of claim 49 which is an anti TNFR-6 α antagonist antibody which (a) binds to a TNFR-6 α polypeptide consisting of amino acids 1 to 215 or amino acids 1 to 300 (SEQ ID NO:2), (b) blocks binding of Fas ligand to the TNFR-6 α polypeptide of (a), and (c) neutralizes the inhibitory effect of the TNFR-6 α polypeptide of (a) on Fas ligand activity in one or more mammalian cells.

130. (New) The antibody of claim 129 wherein said antibody neutralizes the inhibitory effect of the TNFR-6 α polypeptide of (a) on Fas ligand-induced apoptosis in one or more mammalian cells.

131. (New) The antibody of claim 130 wherein said antibody neutralizes inhibitory effect of the TNFR-6 α polypeptide of (a) on Fas ligand-induced apoptosis in one or more mammalian cancer cells.

132. (New) The antibody of claim 131 wherein said mammalian cancer cells are colon cancer cells or lung cancer cells.

133. (New) The antibody of claim 129 wherein said antibody is a monoclonal antibody, a chimeric antibody, a monovalent antibody or a human antibody.

134. (New) The antibody of claim 133 wherein said antibody comprises a Fab fragment.

135. (New) The antibody of claim 133 wherein said antibody is expressed in a recombinant host cell selected from the group consisting of a CHO cell, yeast cell and E. coli.

136. (New) The antibody or fragment thereof of claim 49 that is selected from the group consisting of:

(a) the 4C4.1.4 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12573;

(b) the 5C4.14.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12574;

(c) the 11C5.2.8 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12572;

(d) the 8D3.1.5 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12571; and

(e) the 4B7.1.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12575.

137. (New) The antibody or fragment thereof of claim 49 which is an anti-TNFR-6 α antibody which binds to a TNFR-6 α polypeptide comprising amino acids 1 to 215 of SEQ ID NO:2 and binds to the same TNFR-6 α polypeptide epitope as the epitope bound by a

monoclonal antibody binds, wherein said monoclonal antibody is selected from the group consisting of:

- (a) the 4C4.1.4 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12573;
- (b) the 5C4.14.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12574;
- (c) the 11C5.2.8 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12572;
- (d) the 8D3.1.5 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12571; and
- (e) the 4B7.1.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number HB-12575.

138. (New) An isolated antibody or fragment thereof that specifically binds to a protein consisting of amino acid residues 31 to 300 of SEQ ID NO:2 wherein said antibody or fragment thereof decreases the binding of said protein to a TNF family ligand.

139. (New) The antibody or fragment thereof of claim 138 wherein said TNF family ligand is Fas ligand.

140. (New) The antibody or fragment thereof of claim 138 wherein said TNF family ligand is AIM-II.

141. (New) The antibody of claim 138 which antagonizes TNFR-6 α mediated inhibition of apoptosis.

142. (New) The antibody or fragment thereof of claim 138 which is polyclonal.

143. (New) The antibody or fragment thereof of claim 138 which is monoclonal.

144. (New) The antibody or fragment thereof of claim 138 which is chimeric.

145. (New) The antibody or fragment thereof of claim 138 which is a Fab fragment or an F(ab')₂ fragment.

146. (New) The antibody or fragment thereof of claim 138 which is human.

147. (New) The antibody or fragment thereof of claim 138 wherein said antibody or fragment thereof is expressed in a recombinant host cell selected from the group consisting of a CHO cell, yeast cell and E. coli.